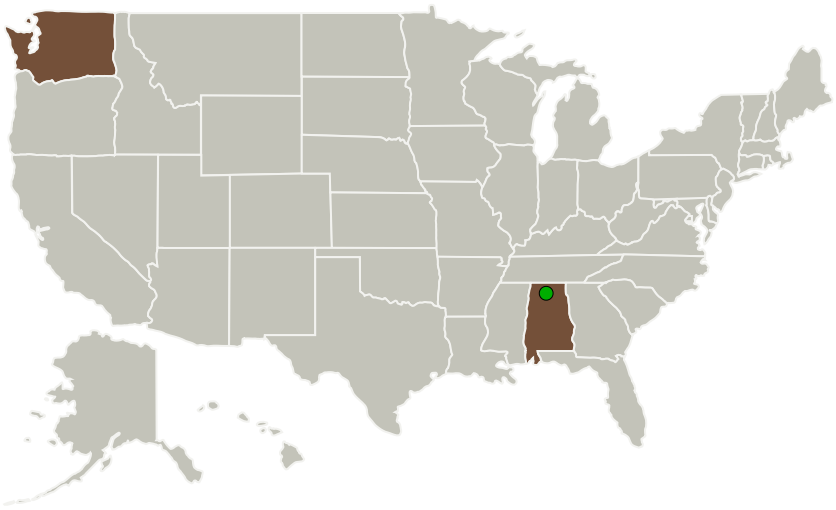
ERASMUS: Food Contact Safe Plastics Recycler and 3D Printer System, Phase I

Completed Technology Project (2016 - 2016)

Project Introduction

One of the goals of the Human Exploration and Operations Mission Directorate (HEOMD) from 2012 is to 'utilize the ISS for developing the systems and protocols necessary to humans to venture beyond low Earth orbit for extended durations', and with the push from Congress in 2015 to build a deep space habitat for a Mars mission by 2018, the goals of HEOMD are increasingly important to meet. ERASMUS will enable these goals by providing a technology suite which is both a trash recycling unit and a microbial sterilizer. The ERASMUS technology suite contains a plastics recycler, dry heat sterilizer, and 3D printer that accepts previously used utensils, trays, and food storage containers, sterilizes these pre-used materials, recycles them into food grade 3D printer filament, and fabricates food contact safe 3D printed parts. This effort intends to minimize the requirements for resupplying and/or storing excess wet wipes, utensils, food containers, and waste. It also intends to improve astronaut health and safety by providing utensils which are truly sterile and free of harmful contaminants for long duration missions. In the phase II effort, we will further enable the goals of HEOMD by expanding ERASMUS to provide a medical grade 3D printer.

Primary U.S. Work Locations and Key Partners



ERASMUS: Food Contact Safe Plastics Recycler and 3D Printer System, Phase I

Table of Contents

ERASMUS: Food Contact Safe Plastics Recycler and 3D Printer System, Phase I

Completed Technology Project (2016 - 2016)

Organizations Performing Work	Role	Type	Location
Tethers Unlimited Inc	Lead Organization	Industry	
Marshall Space Flight Center(MSFC)	Supporting Organization	NASA Center	Huntsville, Alabama

Primary U.S. Work Locations	
Alabama	Washington

Project Transitions

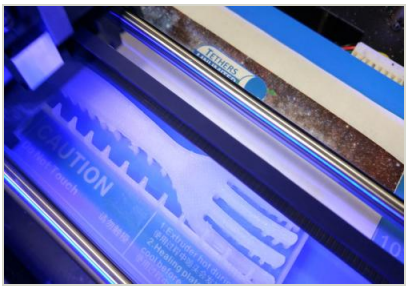
June 2016: Project Start

December 2016: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139693)*

Images



Briefing Chart Image
ERASMUS: Food Contact Safe Plastics Recycler and 3D Printer System, Phase I
(https://techport.nasa.gov/image/130962)

Final Summary Chart Image
ERASMUS: Food Contact Safe Plastics Recycler and 3D Printer System, Phase I Project Image
(https://techport.nasa.gov/image/126952)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Tethers Unlimited Inc

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

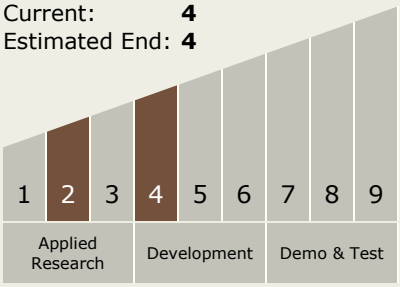
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Kristen Turner

Technology Maturity (TRL)

Start: **2**
Current: **4**
Estimated End: **4**



ERASMUS: Food Contact Safe Plastics Recycler and 3D Printer System, Phase I

Completed Technology Project (2016 - 2016)

Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - TX12.4 Manufacturing
    - TX12.4.1 Manufacturing Processes

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System